

Date: Fri, 4 Jun 93 04:30:16 PDT
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>
Errors-To: Info-Hams-Errors@UCSD.Edu
Reply-To: Info-Hams@UCSD.Edu
Precedence: Bulk
Subject: Info-Hams Digest V93 #681
To: Info-Hams

Info-Hams Digest Fri, 4 Jun 93 Volume 93 : Issue 681

Today's Topics:

 Daily Solar Geophysical Data Broadcast for 03 June
 E-SKIP TO AZORS ON 50MC. Wed eve/6/3/93 GMT/Approx 8PM local
 ft530 rubber resistor: tuned low?
 Generate SSB using combined AM/FM?
 HTX-202 birdies
 Intermod/spurious sigs a common HT problem?
 Motorola Radio Programming Info
 Satellite Listening
 Velocity of light (2 msgs)

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 4 Jun 93 05:06:16 GMT
From: news-mail-gateway@ucsd.edu
Subject: Daily Solar Geophysical Data Broadcast for 03 June
To: info-hams@ucsd.edu

!!BEGIN!! (1.0) S.T.D. Solar Geophysical Data Broadcast for DAY 154, 06/03/93
10.7 FLUX=136.4 90-AVG=120 SSN=138 BKI=3244 3322 BAI=015
BGND-XRAY=B4.5 FLU1=1.3E+05 FLU10=1.2E+04 PKI=3244 4333 PAI=017
BOU-DEV=021,012,041,045,033,038,017,015 DEV-AVG=027 NT SWF=02:003
XRAY-MAX= M1.0 @ 1554UT XRAY-MIN= B3.9 @ 2012UT XRAY-AVG= B7.0
NEUTN-MAX= +000% @ 0000UT NEUTN-MIN= +000% @ 0000UT NEUTN-AVG= +0.0%
PCA-MAX= +0.0DB @ 0000UT PCA-MIN= +0.0DB @ 0000UT PCA-AVG= +0.0DB
BOUTF-MAX=55378NT @ 2359UT BOUTF-MIN=55308NT @ 1623UT BOUTF-AVG=55353NT
GOES7-MAX=P:+000NT@ 0000UT GOES7-MIN=N:+000NT@ 0000UT G7-AVG=+074,+000,+000

GOES6-MAX=P:+145NT@ 1833UT GOES6-MIN=N:-091NT@ 0216UT G6-AVG=+098,-023,-055
FLUXFCST=STD:135,130,125;SESC:135,130,125 BAI/PAI-FCST=015,020,020/015,025,025
KFCST=3335 4332 3335 4332 27DAY-AP=017,035 27DAY-KP=2422 3335 5455 5344
WARNINGS=*SWF
ALERTS=**MINFLR:M1.0/SN@1554,N15W46(7514);**MINFLR:M1.0@2336UTC,N0-OP-COR
!!END-DATA!!

NOTE: The Effective Sunspot Number for 02 JUN 93 was 105.0.
The Full Kp Indices for 02 JUN 93 are: 1o 1- 2o 3- 2+ 2- 2- 2o

Date: Thu, 3 Jun 1993 20:34:25 GMT
From: swrinde!sdd.hp.com!hpscit.sc.hp.com!hplextra!hpfcso!keith@network.UCSD.EDU
Subject: E-SKIP TO AZORS ON 50MC. Wed eve/6/3/93 GMT/Apprx 8PM local
To: info-hams@ucsd.edu

In rec.radio.amateur.misc, rbolt@postman.gsfc.nasa.gov (RBOLT) writes:

> We had opening to CU land from MD,Va, and W5(TEX?) on Wed eve! Weak sig on
> 6 MTRS. Likely double hop E. We could hear Tex in rear wking Cu and we were
> working also. Dick W1DGA

My TV was really acting up Wednesday evening and I thought something might be happening but I was too pressed with other activities to turn the 6M rig on! My priorities are really messed up right now!!!! That's all right if we just have a big opening during the contest on June 12!!!!

Keep posting reports of 6M openings!

John Keith
KD0GD
DN701k

Date: Fri, 4 Jun 1993 09:25:27 GMT
From: sdd.hp.com!apollo.hp.com!hpwin052!hpqmoea!dstock@network.UCSD.EDU
Subject: ft530 rubber resistor: tuned low?
To: info-hams@ucsd.edu

As I have a network analyser almost full time on my bench, I've measured just about everything available, over the years.

- 1) Rubber ducks are disgustingly bad. Radios expected to use them are lowish power and expected to tolerate a poor impedance load.

- 2) Helical antennae are rather sensitive to manufacturing tolerances, maybe the makers just don't think them important as few will measure how bad they are, the majority expect them to be poor.
- 3) With the susceptibility to overload and intermod of the DC-daylight radios, maybe an insensitive antenna is deliberate.
- 4) Few receivers (even superb ones) have a good input return loss. The input filters will guarantee a very poor return loss out of their band, in-band you see through the filter and see the usually poor return loss of the amplifier beyond. This is not really a problem, and fits exactly what you described.

The next time you get to play with an analyser, measure some different coax cables, and see what you think of the cable selection folklore.

Cheers

David GM4ZNX

 Date: Thu, 3 Jun 1993 20:40:03 +0000
 From: swrinde!cs.utexas.edu!utnut!torn!nott!bnrgate!bnr.co.uk!demon!
 llondel.demon.co.uk!dave@network.UCSD.EDU
 Subject: Generate SSB using combined AM/FM?
 To: info-hams@ucsd.edu

In article <btobackC7yn4y.Lu@netcom.com> btoback@netcom.com (Bruce Toback) writes:

> In the ARRL publication "Solid State Design for the Radio Amateur," reference
 > is made to generating an SSB signal by combining AM and FM: "...it may
 > be shown mathematically that a carrier which is amplitude modulated properly
 > and frequency modulated simultaneously will yield a single-sideband output."

>
 > Unfortunately, the text gives no references, and my nearly-vanished knowledge
 > of trigonometric identities is apparently not adequate to derive this result.
 > Can anyone point me at some references and/or provide more information about
 > the technique? How should the amplitude and phase of the carrier and
 > modulating waveforms be adjusted to yield the desired sideband?

>
 NBFM is equivalent to DSB-AM with a phase-shift of 180 degrees in the lower
 sideband. Not sure how clearly the maths will come out on a text terminal
 but here goes:

DSB-AM $e(t) = (1 + k \cos mt) \cos wt$, where m is the modulating freq
 k is the depth of mod and

w is the carrier freq.

This can be expanded to

$$e(t) = \cos wt + [k/2 \cos(w-m)t] + [k/2 \cos(w+m)t],$$

which is the standard carrier+two sidebands we all know and love.

For FM, $e(t) = \cos[wt + B \sin(mt)]$, where w and m are as above, and
B is the modulation index.

This can be expanded (gets horrible-looking now)

$$e(t) = \cos(wt) \cos(B \sin mt) - \sin(wt) \sin(B \sin mt)$$

At this point some assumptions get made, like $B \ll 1$ (else it isn't narrow band FM). I will leave out the series expansion of the $\cos(\sin)$ and $\sin(\sin)$ terms because that is messy, but because $B \ll 1$, all terms with B-squared and higher can be neglected.

This results in $\cos(B \sin mt) = 1$ and $\sin(B \sin mt) = B \sin mt$, and so

$$e(t) = \cos wt - B \sin(wt) \sin(mt)$$

which can expand to

$$e(t) = \cos wt - [B/2 \cos(w-m)t] + [B/2 \cos(w+m)t]$$

Date: Thu, 03 Jun 93 12:52:39 -0400
From: swrinde!emory!nanovx!dragon!nj8j!ben@network.UCSD.EDU
Subject: HTX-202 birdies
To: info-hams@ucsd.edu

gary@ke4zv.uucp (Gary Coffman) writes:

> In article <mJ9g5B2w165w@nj8j.atl.ga.us> ben@nj8j.atl.ga.us (Ben Coleman) wri
> >bote@access.digex.net (John Boteler) writes:
> >> No problem.
> >> Just change the frequency of the local repeater. :)
> >
> >Hah! Depending on the local 'repeater political' situation, it might be
> >easier to arrange for Commodore to re-design the Amiga to eliminate the
> >spur.
>
> That might be even harder.

Just how much experience _have_ you had with repeater politics? :-)

Ben

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+-----+
| Ben Coleman NJ8J          | "All that is not eternal is |
| AX.25:  NJ8J@W4Q0.#EAL.#ATL.GA.USA.NA |   eternally irrelevant." |
| Internet: ben@nj8j.atl.ga.us          |           C. S. Lewis |
+-----+
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Date: Fri, 4 Jun 1993 08:59:16 GMT
From: sdd.hp.com!apollo.hp.com!hpwin052!hpqmoea!dstock@network.UCSD.EDU
Subject: Intermod/spurious sigs a common HT problem?
To: info-hams@ucsd.edu

Date: Fri, 4 Jun 1993 03:52:57 GMT
From: news.service.uci.edu!ucivax!news.claremont.edu!pomona.claremont.edu!
PAT@network.UCSD.EDU
Subject: Motorola Radio Programming Info
To: info-hams@ucsd.edu

Hi Folks,

I will be recieving a Motorola GP-300 8 channel radio with the DTMF option very soon. It will only have 6 of the 8 channels programmed in. The version that I will be receieving say that it can be programmed from 438.00 to 470.00 I would like to setup these last 2 channels for my RACES group repeater and a simplex channel. Where can I get the Kit and Programming software for the radio. I will be happy to call Motorola myself except I have no idea what phone number to call from the right group at Motorola. I have already gotten the permission from my workplace and seeing as I am working with the disaster prep group in bot location it would prove to be very handy.

73's
Pat
KC6TDR

Date: Fri, 4 Jun 1993 07:42:04 GMT
From: csus.edu!csulb.edu!nic.csu.net!eis.CalState.EDU!jherndo@decwrl.dec.com

Subject: Satellite Listening
To: info-hams@ucsd.edu

I want to listen in on the 137-138 MHz satellite systems (get the APT transmissions). I currently have a discone on my roof, but I don't pick up satisfactory signals.. What should I use.. a simple dipole? About 3.5 feet in length? What is a way to make a simple dipole? Strip some coax and run that into my reciever?

```
-----  
-|   John W. Herndon  //  INTERNET: jherndo@eis.calstate.edu   |-  
-|   Long Beach, Ca.  //  Lat: 33.7706 Long: -118.1183 Elev: 0  |-  
-----  
-|   ZERO (adj) - The value of life when the computer goes down.  |-  
-----
```

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Date: 4 Jun 93 07:17:00 GMT
From: news-mail-gateway@ucsd.edu
Subject: Velocity of light
To: info-hams@ucsd.edu

The last physics book I saw said that $E = (\gamma)mc^2$ where γ is the gamma factor: $\sqrt{1-v^2/c^2}$ [or is that $1/\sqrt{1-v^2/c^2}$? I don't have the book handy] Therefore $KE = \text{total } E - \text{rest } E = (\gamma)mc^2 - mc^2$.

At speeds less than $.1c$ γ is close enough to 1 that it can be ignored and Newton's equatons work OK. Above $.1c$ relativity becomes important.

MIKE,N9GQU

Date: Thu, 3 Jun 1993 20:11:41 GMT
From: sdd.hp.com!hpscit.sc.hp.com!hplextra!hpfcso!myers@network.UCSD.EDU
Subject: Velocity of light
To: info-hams@ucsd.edu

> This reminds me of a cartoon by Sidney Harris which show Einstein standing
> at a blackboard with three equations written on the board. The first two,
> $E=ma^2$ and $E=mb^2$, have both been crossed and he is writing the equation
> $E=mc^2$ (by the way Sidney Harris is very good at poking fun at scientists,
> if you can find his bood "What's so Funny About Science?" it is worth the
> time to thumb through).

Or the classic "FarSide" which shows an obviously frustrated Einstein leaning against his blackboard, which is covered with things like "E=mc^3" and "E=mc^5", while the cleaning lady (who has just straightened up his desk) is saying, "Yep...looks like everything's squared away here, SQUARRRRRRRED away....."

Bob Myers KC0EW Hewlett-Packard Co. |Opinions expressed here are not
myers@fc.hp.com Systems Technology Div. |those of my employer or any other
Fort Collins, Colorado |sentient life-form on this planet.

Date: (null)

From: (null)

$$e(t) = \cos wt + [k/2 \cos(w-m)t] + [k/2 \cos(w+m)t]$$

so you can see the difference. Set B=k, subtract one from the other and you are left with: B cos(w-m)t, which is the LSB.

Phew!

FYI,

$$\begin{aligned}\cos A \cos B &= 1/2 [\cos(A+B) + \cos(A-B)] \\ \sin A \sin B &= 1/2 [\cos(A-B) - \cos(A+B)] \\ \sin A \cos B &= 1/2 [\sin(A+B) + \sin(A-B)]\end{aligned}$$

Dave

* G4WRW @ GB7WRW.#41.GBR.EU AX25 * You think *you* have problems? *
* dave@llondel.demon.co.uk Internet * What do you do if you *are* *
* g4wrw@g4wrw.ampr.org Amprnet * a manically depressed robot?? *

Date: Thu, 3 Jun 1993 20:02:54 +0000

From: usc!cs.utexas.edu!utnut!torn!nott!bnrgate!bnr.co.uk!demon!

llondel.demon.co.uk!dave@network.UCSD.EDU

To: info-hams@ucsd.edu

References <1993May24.142757.11605@rsg1.er.usgs.gov>,
<21870034@hplvec.LVLD.HP.COM>,<1993Jun3.124806.22145@rsg1.er.usgs.gov>p

Reply-To : dave@llondel.demon.co.uk

Subject : Re: Alinco DJ-580 question

In article <1993Jun3.124806.22145@rsg1.er.usgs.gov> tbodoh@resdgs1.er.usgs.gov
(Tom Bodoh) writes:

> --

> I was the one who originally posted the question - I have since snipped the
> wire to extend receive and have noticed no increase in intermod - even when
> driving in areas that used to drive my scanners nuts. I wonder if Alinco
> has made some production changes - both I (who bought mine last month) and
> the guy who got his at Dayton have not noticed any problem. Any thoughts? I
> guess I won't know for sure until next time I go into a really heavy RF area
> such as Denver or Minneapolis. Bye...

>

If anyone actually *knows* the detail of any such production changes I would
be interested in finding out because (unless it is really bad) I would try
to implement them on my 580 (bought last November). It suffers breakthrough
from my packet station (abt 50ft and several MHz away) which my TH41E
does not.

Dave

```
*****
* G4WRW @ GB7WRW.#41.GBR.EU AX25      *   You think *you* have problems?   *
* dave@llondel.demon.co.uk  Internet *   What do you do if you *are*      *
* g4wrw@g4wrw.ampr.org      Amprnet  *   a manically depressed robot??    *
*****
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End of Info-Hams Digest V93 #681
